

Emissions Trading From An Offset Buyer's Perspective

**2nd Annual Climate Change Research Conference - CEC
First Scientific Conference – WCGGWI**

Design of Emissions Trading Programs to Reduce GHG Emissions Session
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The Ice is Slipping

When It Warms Up, Ice Melts

- **Before global warming, how thick was the Northern Polar Ice Cap?**
 - A: Over 1,000 feet thick
 - B: 100 - 1,000 feet thick
 - C: 10 - 100 feet thick
 - D: Under 10 feet thick

The Chilling Truth

Thinner Than Santa's Sleigh

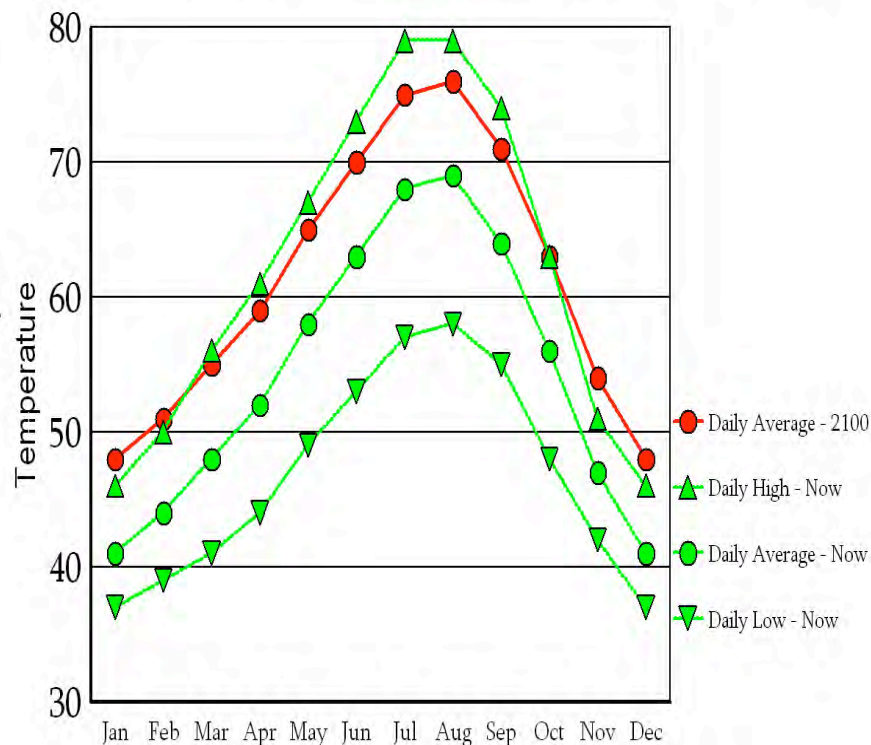
- **The answer:**
 - C, but just barely
 - The Arctic Ice Cap averaged just over 10 feet thick
- **Question: How thick is it now?**
 - Answer: 6 feet thick
 - It has decreased 40% in thickness in 40 years
 - It has decreased 6% (~Texas) in area in 20 years
- **What about the future?**
 - Summer Northwest Passage by 2015
 - No summer ice cap by 2050

The Future: Severely Shifted Seasons

Portland Temperature, Month by Month: Now & in 2100

Portland Temperature Change: Year 2100

Anticipated Business As Usual Change (+7 Degrees)



Produced by The Climate Trust: info@climatetrust.org

- Today's high temperature becomes merely average
 - Will hit today's high by late morning, with 8° to go
- Winter weather disappears
 - November – February gone
 - January moves to equinox
- Summer expands & swelters
 - 4 months hotter than August

HOW WILL CLIMATE CHANGE EFFECT THE U.S.?



Scientists expect temperatures will rise approximately 7°F over the next 100 years due to climate change.

Follow the red arrows south to discover what the climate of these major U.S. cities will be like in 2100.

Now a Contentious International Issue

US Faces Increasing Pressure to Act on Climate Change

- **Joint British/French appeal to US:**
 - “Incalculable” cost to health, the environment and national economies that “will clearly be higher than the economic cost of measures to tackle the phenomenon.”
- **Tony Blair:**
 - A greater security threat than terrorism
 - “...a challenge so far-reaching in its impact and irreversible in its destructive power that it radically alters human existence.”
 - The top agenda item of his G8 & European Union leadership

Oregon's 50-Year CO₂ "Budget"

To Achieve 450 ppm

- **Humanity can emit 1.1 trillion MT CO₂**
 - Current = 380 ppm, Target = 450 ppm, Increase = 70 ppm
 - Each ppm = 7.9 billion MT CO₂
 - Ocean absorbs ½
- **How long would Oregon's potential share last?**
 - Population 0.05% 0.5 billion MT 10 years
 - Emissions 0.29% 3.2 billion MT 56 years
 - Convergence 0.10% 1.1 billion MT 19 years
 - Note: Years estimate assumes no growth from current emissions

The Climate Trust

Non-Profit Buyer of GHG Offsets

- **Carbon Offset Market Leader**

- One of largest and most experienced offset buyers in US and world markets
 - **Projects:** 10+ projects, \$4 million, 1.6 million metric tons CO₂
 - **Pipeline:** \$7 million more in acquisitions underway

- **2 Major Programs**

- **Oregon CO₂ Offset Program**
 - New power plants must offset part of their CO₂ emissions
 - Power plants comply by paying money to The Climate Trust
- **GHG Offset Partnership Program**
 - Significant and growing revenue source

Diverse, High Quality Offset Portfolio

Offset: Specific Project That Reduces GHG Levels



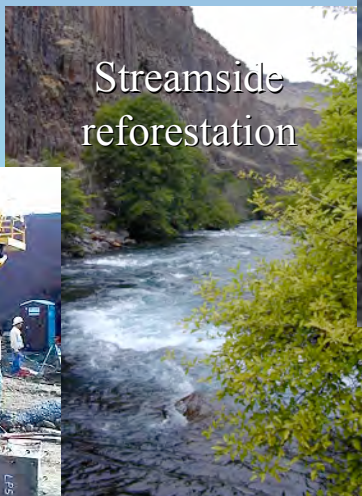
Wind



Truck stop
idle reduction



Blended cement



Streamside
reforestation



Industrial efficiency



Building energy efficiency



Traffic signal
optimization



Cogeneration



Rainforest
reforestation

Offsets Are An Emerging Market

Experience as a “Pioneer”

- **Thin market: Few buyers and sellers**
- **Potential sellers need much education**
- **Early transaction costs are high: Need for standardization**
 - Project eligibility
 - GHG accounting: baselines, monitoring
 - Offset contracts
- **Offset providers need money up front: Buyers needs to mitigate financial risk**

Market-Based Environmental Regulation

The Great Experiment

- **Benefits: Economic efficiency, encourages adaptation**
- **Concern: Perception that we can do this “on the cheap”**
 - Put in context: \$1/tonne = ...
 - 1 cent per gallon of gasoline
 - 1/10 cent per kWh of electricity, if displacing coal
 - Price response likely to be insufficient: energy is inelastic
- **Offsets play a key role: Society addresses climate issue at least total cost, leaving more money for our other needs**
- **Risk: Failure of experiment leads to rigid regulation**

Need High Offset Standards

Projects Must Create “Additional” CO₂ Reductions

- **Mitigation measures that would not occur without offset project funding**
 - Excludes common practice, regulated activities
 - Performance standards can be used as a surrogate
- **Project must be new to reduce atmospheric GHG**
- **Weak offset standards could allow compliance with nominal regulations while atmospheric GHG rises**

Not All Renewables Are Additional

*The Following Should **NOT** Be Eligible as Offsets*

- Used to meet a Renewable Portfolio Standard
- Used to meet state GHG emissions reductions regulations
- Used to comply with a legal settlement
- Used to comply with an enforcement action
- Required by an integrated resource plan
- Paid for in a utility's general rates
- For which the renewable energy certificates have been sold into some other renewable energy market.

Design Issues for Trading Program

Alternative Treatments for Electricity

- **Point-of-emission vs point-of-control**
 - Aka, generator vs load-based
 - Aka, direct vs indirect
 - Accounting procedures avoid double counting
- **Ownership issues for indirect reductions**
 - Treatment of end-user renewable purchases
 - Treatment of end-user funded efficiency

Oregon GHG Strategy

Load-Based Allowance System Design Starting

- Capped entity: Load serving entity, not generator
- Includes emissions embodied in purchased electricity
 - Addresses “leakage” due to out-of-state coal plants
 - Need check sum mechanism to eliminate contract gaming
- Many design issues:
 - Stringency of cap
 - Flexibility: trading, offsets, off ramps
 - Equity among fuel types and suppliers
 - Maintaining competitiveness
 - Renewables, energy efficiency
 - Trading with CA, WA, and others preferred